

Best Available Copy



Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(88) Date of publication of the international search report:
29 July 2004

Best Available Copy

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/25677

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : E21B 23/00; F16L 25/00

US CL : 166/207,380; 285/333

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 166/207,380,206,313,381,242.6; 285/333,53; 403/179,273

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
Please See Continuation Sheet**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A, P	US 2003/0067166 A1 (SIVLEY, IV) 10 April 2003 (10.04.2003), whole document.	1-4
A	US 5,314,014 A (TUCKER) 24 May 1994 (24.05.1994), whole document.	1-4
A	US 4,614,233 A (MENARD) 30 September 1986 (30.09.1986), whole document.	1-4
A	US 3,520,049 A (LYSENKO et al) 14 July 1970 (14.07.1970), whole document.	1-4

☐ Further documents are listed in the continuation of Box C.☐ See patent family annex.

* Special categories of cited documents:

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier application or patent published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
- "&" document member of the same patent family

Date of the actual completion of the international search

12 December 2003 (12.12.2003)

Date of mailing of the international search report

21 MAY 2004

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Facsimile No. (703) 305-3230

Authorized officer

David J. Bagnell

Telephone No. (703) 308-1113

Form PCT/ISA/210 (second sheet) (July 1998)

Best Available Copy

INTERNATIONAL SEARCH REPORT

PCT/US03/25677

Continuation of B. FIELDS SEARCHED Item 3:
JPO, EPO, Derwent

Terms: sleeve, tubular, expansion/expand, magnetic, impulse/impulsive

Best Available Copy